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10/604,557	07/30/2003	Christos J Georgiou	BUR920030040US1	1556

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EXAMINER

COOPER, SHATIQUE S

ART UNIT	PAPER NUMBER
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2609

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/604,557	GEORGIOU ET AL.	
	Examiner	Art Unit	
	Shatigue S. Cooper	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/11/2004 & 7/30/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The reference listed in the Information Disclosure Statements filed on November 11, 2004 and July 30, 20003 has been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

Drawings

2. The drawings are objected to because they are informal. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. **Claim 20** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding **claim 20**, the claimed software is non-statutory subject matter since it is not a process, machine, manufacture nor composition of matter; nor it is recorded on computer-readable medium, see MPEP 2106(IV)(B)(1).

Claim 20 lacks the proper preamble language for statutory computer program product. See MPEP 2100 for guidance on computer related inventions.

The examiner suggests a preamble as follows:

"A computer readable medium containing computer executable instructions to perform a method, the method comprising:"

Correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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2. **Claims 1-4, 9, 15, 16, 18 and 19** rejected under 35 U.S.C. 102(e) as being anticipated by Rana et al.

Regarding **claim 1**, Rana et al. discloses a method of reordering data packets received out of order (**col.2, lines 27-29**), the method comprising the steps of:

reading context information from a received data packet to determine whether the received packet is in a given sequence (**col.2, lines 45-48, Packet Assembler uses unique fields in the data to access a session ID**);

comparing said context information of the received data packet to an expected sequence count for the given sequence, and storing the received packet with said context information in a memory as a linked list when there is a match, all received packets in the linked list being in order (**col.3, lines 44-49, PDU assembler receive data from input interface, can perform several functions: compare context and sequence information**);

creating a new linked list each time a new data packet is received out-of-order (**col.3, lines 56-59 & col.4, lines 33-39, PDU assembler checks the extracted fields to see if the data packet is known or a new session**);

linking in order all subsequent packets received in order to the new linked list (**col.4, lines 36-39**);

constructing a reorder table of addresses of the first packet for all linked lists (**col.4, lines 1-13, the fields extracted from the header by PDU assembler, table of address can be constructed in the PDU or packet assembler**);

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and reading packets out of the memory in an order specified by the reorder table (**col.4, lines 57-60**).

Regarding **claim 2**, Rana et al. discloses everything as applied above (*see claim 1*). In addition the method includes:

Wherein the comparing steps includes incrementing the expected sequence count (**col.7, lines 56-61, the fragment assembly flow chart can be used for the incrementing of the sequence count**).

Regarding **claim 3**, Rana et al. discloses everything as applied above (*see claim 1*). In addition the method includes:

wherein comparing context information includes comparing a flow type indicator (**col.5, lines 31-34, “time stamp” (indicator) to make certain that nothing affects the traffic flow**).

Regarding **claim 4**, Rana et al. discloses everything as applied above (*see claim 1*). In addition the method includes:

steps of constructing a transmission table of one or more entries, each entry including at least one of a flow indicator (**col.5, lines 31-34, “time stamp” (indicator) to make certain that nothing affects the traffic flow**), a sequence number and a memory address associated any of the linked lists (**col.4, lines 36-39**), the flow indicator being associated with the reorder table (**col.5, lines 55-61, each data packet consist of the flow indicator to track the traffic flow, a session ID so the linked list can control the source and destination of the packet**).

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Regarding **claim 9**, Rana et al. discloses everything as applied above (*see claim 8*). In addition the method includes:

wherein the detecting step includes the steps of: initializing an expected sequence count for each of the one or more packet flows; comparing a received sequence count to the expected sequence count for the packet flow associated with a currently received packet; and setting the expected sequence count for the packet flow associated with the currently received packet to the received sequence count when unequal; and incrementing the expected sequence count for the packet flow associated with the currently received packet (**col.7, lines 56-67 and col.8, lines 1-6, the fragment assembly flow chart can be use to achieve the sequence count and to increment it**).

Regarding **claim 15**, Rana et al. discloses the method (*see claim 8*).

wherein the ordering step includes the steps of: accessing a transmission table to retrieve a next non-null entry (**col.7, lines 57-61**); searching a reorder table based on the next non-null transmission table entry to locate a reorder table entry with a lowest sequence number and at least equal to or less than the sequence number in the next non-null transmission table entry (**col.8, lines 4-6**); transmitting all packets in the at least one of the in-sequence and the out-of-sequence packet chain identified in the located reorder table entry so that the packets are sent in sequence order (**col.5, lines 24-28**) , and incrementing a transmitted packet count for each transmitted packet; and removing the located reorder entry.

Regarding **claim 16**, Rana discloses everything as applied above (*see claim 15*). In addition the method includes:

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steps of returning to the transmission table to access another next non-null entry (**col.7, lines 57-61, after receiving a new packet the pointer is set to the next block, which is set to a null value**).

Regarding **claim 18**, Rana et al. discloses everything as applied above (*see claim 15*). In addition to the method includes:

wherein the searching a reorder step includes searching the reorder table based on the next non-null transmission table entry to locate the reorder table entry with the sequence number next to be sent as indicated by the transmitted packet count (**col.4, lines 1-7, PDU assembler assigns the session ID and all the session ID are stored in the session CAM**).

Regarding **claim 19**, Rana et al. discloses everything as applied above (see claim 8). In addition the method includes:

wherein the ordering step includes: retrieving an entry from a transmission table associated with one or more reorder tables (**col.3, lines 30-34 and col.5, lines 10-12, the queue engine reorder out of sequence packets and the input interface keeps track of what is being transmitted col.3, lines 40-42**); identifying locations of the in-sequence and out-of-sequence packet chains (**col.4, lines 4-6, where the session ID is the identification of each session**); searching the associated one or more reorder tables for the sequence number associated with one of the in-sequence and out-of-sequence corresponding to the retrieved entry (**col.4, lines 4-6, the session CAM keeps track of the sequence number of each packet**); determining whether the sequence number associated with the one of in-sequence and out-of-sequence packet chain is a minimal sequence number (**col.4, lines 14-17, the PDU assembler can determine the**

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associated number with an in-sequence or out-sequence packet); if so, then transmit in order the packet chain associated with the minimal sequence number (**col.4, lines 57-60, after getting checked by the PDU assembler the link list control unit, if the packet is ready will output it**); and if not the minimal sequence number, then search the reorder table for next minimal sequence number and transmit in order the packet chain associated with next minimal sequence number and continue search and transmitting next minimal sequence number and associated packet chain until the retrieved minimal sequence number and associated packet chain has been transmitted (**col.5, lines 14-27**).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 5-8, 10-14, 17 and 20** rejected under 35 U.S.C. 103(a) as being unpatentable over Rana et al. (US Patent Number 6,781,992) in view of Maher, III et al. (US Patent Number 6,381,242).

Regarding **claim 5**, Rana et al. discloses everything as applied above (*see claim 4*).

However Rana et al. fails to specifically disclose the method of the reorder table.

Maher III et al. discloses a method wherein: the constructing a reorder table includes one or more entries, each entry having a sequence number of the first packet of one linked list (**col.8,**

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lines 51-54); and the reading packets step includes the steps of: accessing the one or more transmission table entries in turn, and for each entry (**col.9, lines 11-16**), using the flow indicator (**col.6, lines 29-35**) to locate the associated reorder table; searching the associated reorder table to locate any entry having the sequence number matching the accessed transmission table entry's sequence number (**col.9, lines 11-13**) ; and reading all packets in order from a linked list associated with the located any entry.

Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention was made to provide Rana et al. with the method of the reorder table to ensure that the reorder packets are being routing to their destination to make certain that all packets are being transmitted throughout the network.

Regarding **claim 6**, Rana et al. disclose everything as applied above (*see claim 5*). However Rana et al. fails to specifically disclose the method of the reorder table.

Maher III et al. discloses a method wherein the constructing a reorder table step includes constructing one or more reorder tables, each of the one or more reorder table associated with one or more packet flows (**col.9, lines 13-16**).

Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention was made to provide Rana et al. with the method of constructing the reorder table to insure that the reorder packets are transmitted. The content processor only scans data in order and the active list keeps track of the active packets session ID.

Regarding **claim 7**, Rana et al. discloses everything as applied above (*see claim 5*). However Rana et al. fails to specifically disclose the method of accessing the reorder table.

Maher III et al. discloses a method wherein the accessing the one or more transmission table entries, in turn, provides a relative ordering among all the read data packets between one or more packet flows (**col.9, lines 13-20**).

Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention was made to provide Rana et al. with the active control list and a linked list to retrieve the next context, so the out of order packets are transmitted with a session ID that is active.

Regarding **claim 8**, Maher III et al. discloses a method for ordering packets, the method comprising the steps of: detecting at least one of an in-sequence and an out-of-sequence packet chain in one or more packet flows (**col.8, lines 42-46**); storing the detected at least one of the in-sequence and the out-of-sequence packet chain in a memory (**col.8, lines 46-51**); providing a sequence number with each of the stored in-sequence and the out-of-sequence packet chain (**col.8, lines 56-59**); associating the sequence number with an address in the memory of at least one of the stored in-sequence and the out-of-sequence packet chain (**col.6, lines 20-22**); and ordering the at least one of the in-sequence and the out-of-sequence packet chain from the memory based on the associated sequence number to provide one or more packet flows all in-sequence (**col.9, lines 6-13**).

Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention was made to provide Rana et al. with content processor which includes three separate engines, queue engine, context engine and the content scanning engine. Which would provide him with reassemble fragment and reorder out of order packets functions.

Regarding claim 8 Maher III et al. discloses a method and also discloses a computer readable medium as claimed in claim 20.

Regarding **claim 20**, Maher III et al. disclose a computer program product comprising a computer usable medium having readable program code embodied in the medium, the computer program product includes (**col.2, lines 13-21**): a first computer program code to detect at least one of an in-sequence and an out-of-sequence packet chain in one or more packet flows; a second computer program code to store the detected at least one of the in-sequence and the out-of-sequence packet chain in a memory; a third computer program code to provide a sequence number with each of the stored in-sequence and the out-of-sequence packet chain; a fourth program code to associate the sequence number with an address in the memory of at least one of the stored in-sequence and the out-of-sequence packet chain; and a fifth program code to order the at least one of the in-sequence and out-of-sequence packet chain from the memory based on the associated sequence number to provide one or more packet flows all in-sequence.

Regarding **claim 10**, Rana et al. disclose everything as applied above (*see claim 8*).
However Rana et al. fails to specifically disclose:

Maher III et al. discloses a method wherein the storing step includes linking one or more received packets into a linked list associated with the sequence number of each of the at least one in-sequence and the out-of-sequence packet chain (**col.8, lines 48-54**).

Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention was made to provide Rana et al. with the reorder and reassembly engine with the

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linked list. It will provide a new linked list each time a packet is received out of order and linking all packets received in order.

Regarding **claim 11**, Rana et al. disclose everything as applied above (*see claim 8*).

However Rana et al. fails to specifically disclose:

Maher III. et al discloses a method wherein the sequence number is a list of sequence numbers, each associated with at least one of the in-sequence and the out-of-sequence packet chain (**col. 8, lines 56-59**).

Therefore, Rana et al. session CAM associate with the unique signature used to identify each session. But Maher III et al. session CAM stores the session id generated by the queue engine of the content processor, then the reordering and reassembly engine uses the session id to link data belonging to the same data flow.

Regarding **claim 12**, Rana et al. discloses everything as applied above (*see claim 8*).

However Rana et al. fails to specifically disclose:

Maher III et al. discloses a method wherein the associating step includes the steps of:

determining if a context switch is necessary by checking a packet context information in a received packet (**col.8, lines 42-46**); and

Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention was made to provide Rana et al. with the content processor which scans the packets for fragment or to see if they are out of order.

switching context when the packet context information has changed for a next received packet, the packet context information including flow context information (**col.9, lines 6-11**).

Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention was made to provide Rana et al. with the context engine that will select a new context when a context has finished processing and has been transmitted out of content processor which implements accuracy of the packets⁹.

Regarding **claim 13**, Rana et al. discloses everything as applied above (*see claim 8*). However Rana et al. fails to specifically disclose:

Maher III et al. disclose a method wherein the associating step further includes entering an entry so that a temporal order of the at least one of the in-sequence and the out-of-sequence packet chain is maintained (**col.5, lines 41-46**).

Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention was made to provide Rana et al. with the link list control unit that is responsible for allocating and deallocating the packets to ensure the flow and time of each packet.

Regarding **claim 14**, Rana et al. discloses everything as applied above (*see claim 8*). However Rana et al. fails to specifically disclose:

Maher III et al. discloses a method of building a table by entering the sequence number of a first packet of any of the packet chains and an address in the memory of the stored at least one of the in-sequence and the out-of-sequence packet chain of the any of the packet chains (**col.8, lines 48-57**).

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Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention was made to provide Rana et al. with the content processor that has a session CAM that will store all the session ID for each packet to link the session ID to the link data packets belonging to the same data flow.

Regarding **claim 17**, Rana discloses everything as applied above (*see claim 15*). However Rana fails to specifically disclose:

Maher III et al. disclose a method wherein the reorder table and the transmitted packet count are associated with one of the one or more packet flows (**col.9, lines 13-16**).

Therefore, it would have been obvious to person of ordinary skill in the art at the time of the invention was made to provide Rana et al. with the active control list which keeps track of the session ID corresponding to the new order of the packets and for the accuracy of the in-sequence packets.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shatigue S. Cooper whose telephone number is (571)-270-1661. The examiner can normally be reached on Monday - Friday (7:30am -5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571)-272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SSC

 3/30/07
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